



ORIGINAL

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September 16, 1996

**EX PARTE**

Mr. William F. Caton  
Acting Secretary  
Federal Communications Commission  
1919 M Street, NW, Room 222  
Washington, DC 20554

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SEP 16 1996

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

RE: FCC Proposes Consolidation of Common Carrier and Private Carrier  
Paging Services to Promote Growth and Streamline Regulation  
(WT Docket No. 96-18)

Dear Mr. Caton:

On Friday, September 13, 1996, Preston McAfee, Mark Stachiw and I, on behalf of AirTouch Communications, met with David Siddall, Legal Advisor to Commissioner Ness to discuss issues relating to this proceeding. Please associate the attached material with the above-referenced proceeding.

Two copies of this notice are being submitted to the Secretary in accordance with Section 1.1206(a)(1) of the Commission's Rules.

Please stamp and return the provided copy to confirm your receipt. Please contact me at 202-293-4960 should you have any questions or require additional information concerning this matter.

Sincerely,

A handwritten signature in cursive script that reads "Kathleen Q. Abernathy".

Kathleen Q. Abernathy

Attachment

cc: David Siddall

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# **AIRTOUCH COMMUNICATIONS, INC.**

## **Amendment of the Commission's Rules to Provide for Unlicensed NII/SUPERNet Operations in the 5 GHz Frequency Range (ET Docket No. 96-102)**

Kathleen Q. Abernathy  
Donna L. Bethea  
Michael A. Kozlowski  
September 13, 1996

# Globalstar Feederlinks

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- 5091 - 5250 MHz Earth-to-space
  - Eight 16.5 MHz channels on each of two polarizations
  - Guardbands between channels to mitigate self-interference
  - Single beam isoflux 5 GHz receive antenna per satellite
    - Compensates for curvature of the earth, slant range and atmospheric losses
    - Uniform gain w.r.t. earth's surface
    - Designed for feederlink station operation down to 10 degrees elevation
  - Beam coverage diameter over 3000 nmi
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# **SUPERNet Device Interference Issues**

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## **■ Directional antennas yield little improvement**

- ☐ Satellite isoflux antennas have high gain at 10 degrees
- ☐ High performance antennas needed to keep sidelobes below 10 degrees

## **■ Increasing feederlink station EIRP not a solution**

- ☐ Increases amount of satellite power required
  - ☐ Satellite S-Band service downlink pfd limited by the ITU
  - ☐ Satellite noise floor much lower than mobile earth terminals
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# **SUPERNet Device Interference Issues**

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## **■ Duty cycle constraints a possible option**

- ☐ Limit transmitter on time
- ☐ Implement listen-before-talk
- ☐ Prohibit continuous transmissions by specifying minimum transmitter off time after on
- ☐ Use an efficient air interface protocol

## **■ Power limit recommendations**

- ☐ Tie maximum power to channel bandwidth: specify in spectral density
- ☐ Utilize lower spectral density limits for smaller channel bandwidths
- ☐ Restrict outdoor units to above 5250 MHz
- ☐ Specify device out-of-band emissions (on the order of -10 to -20 dBc)

## Sample Scenarios

Parameter	AirTouch Filing	Case 1	Case 2	Case 3
# Total Devices	50 Million	50 Million	50 Million	50 Million
Bandwith/Device	20 Mhz	<b>10 Mhz</b>	<b>10 Mhz</b>	<b>10 Mhz</b>
# Devices/Band	10 Million	5 Million	5 Million	<b>50 Million</b>
Duty Cycle	50%	<b>100%</b>	<b>100%</b>	<b>100%</b>
Outdoor Use	60%	<b>100%</b>	<b>100%</b>	<b>100%</b>
Gain Outdoors*	2 dB	<b>0 dB</b>	<b>0 dB</b>	<b>0 dB</b>
S/C Noise Temp.	549.5 K	549.5 K	549.5 K	<b>1000 K**</b>
Self Interference	Yes	Yes	<b>No</b>	<b>No</b>
S/C Eb/No Impact	95.0%	95.1%	98.3%	99.7%
User Eb/No Impact	26.7%	27.5%	32.6%	82.8%

\* Indoor gain is always -17 dB.

\*\* Although 549.5 K was used in AirTouch's filing,  
using 1000 K instead does not appreciably  
contribute to User Impact

**Bold** indicates changes from AirTouch filing estimates.



## Part 15 Operation Rules

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- **Unlicensed Part 15 devices have no spectrum allocation status, but rather have a secondary status only:**

“Persons operating intentional or unintentional radiators shall not be deemed to have a vested or recognizable right to continue use of any given frequency...”  
(47 C.F.R. 15.5(a) (1995))

- **These devices are prohibited from causing harmful interference to and must accept interference from licensed radio services:**

“Operation of an intentional, unintentional, or incidental radiator is subject to the conditions that no harmful interference is caused and that interference must be accepted that may be caused by the operation of an authorized radio station...”  
(47 C.F.R. 15.5(b))

## Summary

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- Development of Globalstar system is near completion
    - ❑ Most design parameters have been finalized
    - ❑ Significant changes are not feasible
  - Key parameters of SUPeRNet devices must be effectively regulated to reduce interference into NGSO MSS feeder links
  - “Safe Harbor” rule for Part 15 device operation does not ensure protection against harmful interference for licensed users.
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## **Requiring modest deposits on a license-by-license basis**

- Will help identify licenses with a single seriously interested party
  - allows those to be issued immediately
- Permits non-mutually exclusive licenses to be issued prior to auction
  - there may be many of these because of incumbents
  - thereby reducing the number of licenses auctioned, expediting the issuing of licenses
- Can be applied only to substantially encumbered spectrum
  - e.g. 50% or more pops already served
- May be less than \$2,500 or \$.02/activity unit
  - but payment for desired eligibility still applies

**Closing those licenses that do not obtain more than one bid after a specified number of rounds will not harm the simultaneous closing rule**

- if two bidders both want a license, both can bid to keep license in play
- eliminates licenses with only one active interest
- others can close simultaneously
- suggest 5-10 rounds for a reasonable "close with no activity"
- useful given large number of licenses to be issued

## **Modest buildout Requirements are pro-competitive**

- Competitors may try to block expansion of existing incumbents
- Anticompetitive use would involve slow or no development
- A one-year ten percent requirement will reduce anticompetitive behavior
  - without harming procompetitive use as procompetitive use involves buildout

## **Buildout requirements should be specified clearly**

- Substantial Coverage should have a clear definition
- It should apply at all points in time as population coverage requirement
  - so that it isn't used to warehouse spectrum
  - five year delay is haven for anticompetitive use of spectrum